Discussion Topics for Economists

In our current approach to modeling developers' responses to a stormwater regulation EPA has assumed that developers would install structural controls on the existing land, and/or reduce impervious surface to reduce the volume of stormwater needing to be managed.

It is important for EPA to account for all potential effects a new standard may have on developer profits, by accounting for any potential loss of net revenue or for higher costs associated with a project. Engineering costs for controls are relatively straightforward, and we have developed a modeling approach to account for them. We are hoping to account for potential effects on property value to account for changes in revenue. However, a developer may choose to reduce the size of the building or number of buildings being constructed in order to comply with a new regulation. It is infeasible to identify which projects took this action and thus to account for this loss of revenue, using historical data available to us. The frequency of these types of changes to project scope, due to a new standard, is an important consideration for EPA. How would you recommend EPA account for these types of changes?

Moreover, developers may not change the size or number of buildings that they intend to build, but they may acquire more land than they would have otherwise to accommodate stormwater controls if that is a less expensive alternative than siting all of the additional controls on the land they initially intended to purchase. How would you recommend EPA account for these types of changes?

Ultimately, there would likely be some reshuffling of the types of projects and locations, as certain types of projects may no longer be profitable in specific locations due to the increase in costs from the stormwater requirements. There would be some loss of value to society overall from this reshuffling, to the extent that it occurs. How might stormwater regulations influence development patterns, if so how should they be accounted for? How would you recommend EPA account for these types of changes?

All three of these scenarios represent a departure from the pre-regulatory status quo. Yet EPA's engineering, compliance cost and environmental assessment analyses, use the same set of projects, with the same sizes, and buildings, to model the future with and without the rule. If the above scenarios happen frequently, how would you recommend EPA account for these types of changes?

We know that there are increases in the cost for developing projects that would be due to the additional compliance cost from a new stormwater regulation. This effectively shifts the cost curve upward, increasing prices and decreasing quantity sold. (We have estimated these effects for our economic analysis.) However, we know that the nature of the developments' attributes change, which would likely cause a shift in the demand curve as well. So there are two different effects on observable prices. How do we account for these in our proposed hedonic analyses?

There is literature on the effect of landscaping, such as parks and agriculture, on property values. Is it appropriate to transfer the effects from that literature estimate the revenue impacts of changes to green space that result from compliance with a stormwater regulation?

Would it be possible to do an expert elicitation, focus groups, or a survey to get at the effect on land values of a stormwater regulation?

Should the accompanying chart also include a box that values the loss to the society of the public good that would have been derived from impervious surface that is now being reduced (e.g., narrower roads)?

Economic theory would suggest that the construction cost savings would be equal or less than the revenue lost (two dashed boxes on chart). Would removing the construction cost saving box from the chart suffice in the short term in lieu of completing a hedonic analysis of property value changes to fill in the revenue loss box?